New York Environmental Technical Working Group (E-TWG)
Meeting Summary – 17 July 2018

	Name	Date
Prepared by	Kate Williams, Biodiversity Research Institute	8/15/18
Reviewed by	Greg Lampman, NYSERDA	8/30/18
Revised by	Kate Williams, Biodiversity Research Institute	8/31/18
Reviewed by	E-TWG members	10/02/18
Revised by	Kate Williams, Biodiversity Research Institute	10/05/18

Disclaimer: While all efforts were made to accurately represent E-TWG discussions, the views expressed in this summary may not represent the views of all E-TWG members.

Background

As part of New York State's efforts to responsibly develop offshore wind energy, the New York State Energy Research and Development Authority (NYSERDA) convened a group of offshore wind stakeholders to provide input to the state on environmental topics. The first meeting of this Environmental Technical Working Group (E-TWG) was held in New York City in May of 2018; the second meeting, on 17 July 2018 (Appendix A) included 12 E-TWG members in attendance in the room and nine who participated remotely via webex/conference call (Appendix B). Five support staff from NYSERDA, Biodiversity Research Institute (BRI), and Kearns & West were also present for part or all of the meeting.

This meeting summary is intended to capture the key points of discussion and input from the E-TWG, as well as capture action items identified during the meeting. This summary is loosely organized according to the structure of the meeting agenda (Appendix A), though several items in the original agenda were shelved in favor of extended discussions on other topics. Specific comments are organized by topical relevance, not necessarily the part of the agenda in which the comments were made. Opinions are not attributed to specific E-TWG members unless there is a clear reason to do so. For topics where there were differences of opinion among E-TWG members, this summary identifies areas of agreement as well as the different perspectives offered during meeting discussions.

Action Items

The following action items to advance E-TWG objectives were identified during the meeting:

- Support staff will work with E-TWG members to schedule the next E-TWG meeting.
- Support staff will develop a meeting summary from the July 17 meeting (this document), and E-TWG members will review the draft meeting summary and approve it or ask for modifications.
- Support staff will issue an online survey, as a follow up to discussions on potential Specialist Committee topics, asking E-TWG members to identify their top three priority topics and/or provide other written input.
- Support staff will email the E-TWG to resend the draft E-TWG charter and define a time period for review of this document prior to its being finalized.
- Support staff will post materials from the second meeting on the website, as appropriate (including the meeting agenda and Powerpoint slides).
- NYSERDA and support staff will identify a proposed process for the E-TWG to inform the New York Procurement Process, including initiating the development of Best Management Practices (BMPs). Support staff will report this proposed process to the E-TWG for input, and NYSERDA and support staff will move ahead with initiating the BMP development process prior to the next in-person E-TWG meeting.
- NYSERDA and support staff will begin drafting the NYSERDA research solicitation (to be released in the autumn of 2018), and will send a description of the proposed RFP topics to the E-TWG for input. NYSERDA will move ahead with issuing the research solicitation, likely prior to the next in-person E-TWG meeting.
- NYSERDA and support staff will identify an approach for initial review of the NYSERDA Environmental Research Program Plan for Marine Wind and Wildlife (NYSERDA 2015).
- NYSERDA will create a Sharepoint file portal (or other file sharing approach) for E-TWG documents, so that they are all accessible in one place for E-TWG members and emails can include links to files rather than large attachments.

In place of in-person discussion at the meeting, support staff also committed to sending emails to the E-TWG about the following topics:

- The State of the Science Workshop. The email will (1) update the group on meeting planning and recent activities of the workshop committee, and (2) solicit input on potential speakers.
- The draft communications plan. The email will solicit input from E-TWG members on specific topics to inform continued plan development.

Welcome & Introductions

Greg Lampman (NYSERDA) opened the meeting. E-TWG members and support staff introduced themselves and spoke briefly about their organizations and roles.

Updates on E-TWG and Related Activities

Kate Williams (BRI) briefly reviewed the topics discussed during the May 2018 E-TWG meeting, which included New York State activities surrounding the Master Plan; the geographic and topical scope of the E-TWG; the E-TWG framework document and plans to develop a group charter and communications plan; suggested criteria for choosing topics for specialist committees; and possible topic ideas for Specialist Committees.

Greg Lampman (NYSERDA) reviewed the current status of the Commercial and Recreational Fisheries Technical Working Group (F-TWG), which is expected to function similarly to the E-TWG except that a core group of fishermen will be part of the group. A framework for the group has been developed, and a fisheries liaison will assist with outreach to fishermen and with carrying their input back to the State. An online message board is also planned as another way for fishermen to engage with the group and the State. In response to questions from the group, Greg indicated that:

- Interactions and collaborations between different Technical Working Groups are still on an *ad hoc* basis for now, as the F-TWG and Maritime Technical Working Group (led by DOS) are still in development. All groups are helping to inform ongoing state activities such as the identification of topics to be included in the upcoming NYSERDA research solicitation, which is expected to be released in the fall of 2018.
- The geographic scope of the F-TWG's fisheries liaison is not explicit at the moment; the intent is that this liaison will work with fishermen in Massachusetts, Rhode Island, New York and New Jersey, and potentially *farther away depending on what is needed to represent fishermen in regards to New York State activities.*
- Any Best Management Practices (BMPs) or other products produced through the F-TWG will not be produced in a vacuum, and will be vetted through groups such as the Fishery Management Councils to ensure that ecosystem-based management informs group recommendations and that consideration of individual resources is not siloed. Any BMPs that are developed would not be New York-specific fisheries best practices, but would have to be more broadly applicable.

Richard Bourgeois (NYSERDA) talked about the National Offshore Wind Research and Development Consortium. The Department of Energy's Office of Energy Efficiency and Renewable Energy recently announced that NYSERDA won a funding opportunity to establish a national consortium with goals of

reducing the levelized cost of energy and installation risk for offshore wind projects in the U.S., and supporting U.S. based manufacturing and the U.S. based supply chain. Richard noted that the three main pillars of the Consortium effort, based on the 2016 Offshore Wind Strategy document established by the Departments of Energy and the Interior (U.S. Department of Energy and U.S. Department of the Interior 2016), are to: (1) advance offshore wind plant technology, including structures and turbines; (2) promote and develop innovative methods for resource and site characterization, siting and financial risk; and (3) advance technological solutions for installation, operations and maintenance, and the offshore wind supply chain. The national not-for-profit Consortium will be independent and led by a Board of Directors consisting of key national stakeholders, including U.S. national labs, utilities, and offshore wind developers. Comments and suggestions about the R&D Consortium included:

- An E-TWG member asked how the Consortium relates to or overlaps with the Department of Energy's recently released funding opportunity announcement (FOA) for Advanced Wind R&D[1], which includes technologies to detect and monitor marine mammals during offshore wind development. Richard acknowledged that this FOA may overlap with the consortium's topic areas of interest, and that they were in the process of reaching out to the Department of Energy to understand how best to resolve this.
- It was recommended that the Consortium make sure to partner with institutions located where the offshore wind market is likely to be most active, and Richard agreed that the market would influence the direction of Consortium activities.
- It was recommended that the R&D Consortium consult with environmental groups to ensure that new technologies in development can reduce environmental impact concerns, or at minimum are not likely to cause additional environmental concerns.

Other updates from E-TWG members on recent activities included:

- A large whale monitoring workshop (13 June, 2018) was orchestrated by the New York State Department of Environmental Conservation (DEC), which mainly reviewed aerial survey activities and results for the New York Bight[2]. The workshop report and recommendations will be posted to the DEC website and Sherryll Jones (DEC) will ensure that this information is shared with the E-TWG as it becomes available.
- The Massachusetts Clean Energy Center and BOEM also held a scientific workshop in late May 2018, focused on aquatic protected species (marine mammals and sea turtles). Attendees felt it was very informational and that scientists, resource managers and developers were able to have productive discussions. The main output of the meeting is expected to include recommendations for data collection methodologies to better understand interactions between marine mammals and offshore wind. The report is expected to be published by the fall of 2018. Several E-TWG members attended the meeting and will ensure that the report will be shared once it is published.
- BOEM is planning their second Atlantic Ocean Energy and Mineral Science Forum, November 7-8, 2018, in Virginia.

[1] https://eere-exchange.energy.gov/Default.aspx?Search=wind&SearchType=#FoaIdf227569c-def4-4ca4-b061-6b5369a194b8

[2] http://www.dec.ny.gov/lands/113647.html

- BOEM has been heavily involved with outreach relating to identification of new Wind Call Areas in the New York Bight[3], including conducting fisheries meetings in New York and New Jersey.
- The state of New York has a 10 year MOU with Stony Brook University to use their ship the Seawolf to collect environmental data and conduct shipboard observation of marine mammals and sea turtles.
- There was a recent detection of a North Atlantic Right Whale 22 miles off the coast of Fire Island, New York. It was detected by WCS-WHOI's real-time acoustic monitoring buoy located at the edge of the shipping traffic separation scheme and Equinor Lease Area.
- There are already procurement commitments from northeastern states to build 1400 MW of offshore wind in the near term. New York's upcoming procurement (see below) will add to the urgency to establish the E-TWG's goals, learn from past experiences, and help move development forward quickly and responsibly.
- NYSERDA expects to make an announcement about the winners of the metocean buoy RFP[4] in the next month or two. Many of the proposals submitted in response to the RFP included environmental monitoring. The buoys are expected to be deployed in late 2018 or early 2019.
- U.S. Wind plans to install meteorological towers this summer. There are plans to use acoustic receivers to assess potential behavioral changes of marine mammals (e.g., changes in directionality) during noisy periods of tower installation[5]. These plans will be developed further in the next few months. E-TWG members will update the group on the U.S. Wind development and studies connected to that project at future meetings.
- Executive Order 13840, issued June 19, 2018, abolished the National Ocean Council and other regional planning groups and bodies and establishes an Ocean Policy Committee, whose first meeting is scheduled to occur August 1. The Order endorses continued use of regional ocean data portals and continued collaboration with stakeholders, but existing ocean action plans are to be treated as informational resources rather than plans/mandates for federal agencies.
- A regional transmission application for the New York and New Jersey Ocean Grid has been submitted by Anbaric Development Partners LLC. The application is available on the BOEM website[6].

New York State Procurement Process

On July 12, 2018, the New York State Public Service Commission (PSC) authorized NYSERDA to procure 800 megawatts of offshore wind energy through the Order Establishing an Offshore Wind Standard and Framework for Phase 1 Procurement (New York Public Sevice Commission 2018). Greg Lampman (NYSERDA) reviewed this statement from the PSC describing how New York State will procure offshore wind energy in a responsible and cost-effective manner (as informed by comments on the SAPA Notice

[3] https://www.boem.gov/NY-Bight/

[4] https://portal.nyserda.ny.gov/servlet/servlet.FileDownload?file=00Pt0000005wOOYEA2

[5] Since 2014, the State of Maryland has been cost-sharing a study with BOEM to collect acoustic data to 1) characterize patterns of temporal and spatial occurrence of vocalizing marine mammal species and 2) characterize the existing ambient noise environment in and around the Maryland Wind Energy Area. The project is being undertaken by the University of Maryland Center for Environmental Science and the Bioacoustics Research Program at Cornell University. The state hopes to continue this monitoring through installation of the US Wind met tower; for more information, reach out to Catherine McCall (Maryland DNR) or project PI Helen Bailey (UMCES).

[6] https://www.boem.gov/Regional-Proposals/

and GEIS earlier in 2018). The Order defines the process in detail for the initial 800 megawatt procurement, scheduled for late 2018 and 2019. Greg pointed out that the Order also called for advancing responsible development from an environmental/ fishing perspective in several ways, instructing the State to engage in a process that is historically federal. The intent is for the State to support the application of the federal process and hopefully make it even more efficient.

The main environmental considerations, or potential environmental considerations, in the Order include:

- A requirement for developers to engage in consultations with the State during the development process, which is the nexus through which BMPs may be included in this first round of procurements.
- A requirement for environmental data transparency throughout the development process, so that stakeholders can access data from project sites and assess results without waiting for official filings from the developer (with the exception of proprietary data that the developers need to keep private).
- A call for continued environmental research, including research supported by the state.
- Operational project lighting controlled by aviation lighting systems to minimize nighttime visibility.
- An increased consideration of environmental impacts in Phase 2 procurements. If the E-TWG can identify BMPs over the next several years that both developers and eNGOs can agree to, the PSC is open to considering those BMPs as requirements in Phase 2.

The Order also includes a request that the F-TWG develop fisheries-related BMPs; a requirement that successful bidders participate in the F-TWG and that they submit fisheries mitigation plans; and a requirement that proposals be awarded points in NYSERDA's evaluation process if they have fisheries compensation plans included in their Fisheries Mitigation Plan/BMPs (though developers can elect to do as little or as much in this regard as they choose).

NYSERDA will issue a Request for Information (RFI) for offshore wind developers and other interested parties on the mechanics of the 2018 solicitation[7]. This RFI, to be released July 20, will be open until August 10, 2018. NYSERDA is also planning a technical conference on the Order on July 23, which can be attended in person at DPS or by webinar, and a series of open houses and meetings in early September. The goal is to release the solicitation in the fourth quarter of 2018.

Discussion about the Order was extensive; specific topics included the following:

- Inclusion of environmental and fisheries considerations in the Order:
    - New York's consideration of environmental issues in the Order is more than other States have done, and several E-TWG members suggested that New York has an opportunity to be a real leader on this issue. However, several eNGOs felt that the Order should include more environmental considerations than were articulated in the final Order. Several eNGOs submitted a letter to the Commission requesting that environmental BMPs are an eligibility requirement of proposals, for example. Given that this requirement was

[7] https://www.nyserda.ny.gov/All-Programs/Programs/Offshore-Wind/Offshore-Wind-in-New-York-State/Offshore-WInd-Request-for-Information

not included, and BMPs have not yet been developed, several E-TWG members requested clarity regarding how the E-TWG could be incorporated into the procurement process for Phase 1. NYSERDA suggested that E-TWG members go through formal channels to submit comments to the RFI, as feedback from the RFI will inform what is in the solicitation; it was suggested that it would not be considered unreasonable to add more stipulations on environmental issues. The Order was written in a way that encourages this, but was not explicit in requiring NYSERDA to do so. The E-TWG could also be directly involved in leading the development of BMPs for Phase 2 procurements.
    - It was noted that the Order includes more explicit description of how to incorporate F-TWG input (for example, requiring BMP development), which was felt to bolsters those efforts, and that it was a missed opportunity not to handle environmental issues similarly. The hope was expressed that there are opportunities to formally incorporate outputs of the E-TWG into solicitations.
    - The Order grants NYSERDA a fair amount of flexibility in procurement processes, which allows the agency to handle environmental mitigation plans in a similar fashion as it does fishing, should it so choose; however, this is not explicitly required. The E-TWG can and should inform NYSERDA's environmental mitigation plans and discussions.
    - It was suggested that NYSERDA take care to look across TWGs to hear all proposals feeding into the process, and assess the collective timeline and substantive constraints that developers will face. It was recommended that NYSERDA consult with developers through the process, as developers can comment where there will be bottlenecks and issues.
        - Example: there may be some overlapping interests between the Environmental, Fisheries, and Maritime TWGs with regard to the nighttime lighting visibility requirements in the Order. Greg Lampman indicated that leaders of the F-TWG and M-TWG have been having conversations on this topic.
- Fisheries compensation:
    - Financial compensation programs must be carefully designed and administered. Based on feedback from fishermen in the UK with programs there, it seems that doing it wrong could create serious problems within the industry at a later stage (e.g., if it is felt that compensation is allocated unfairly). Compensation has to be evidence-based and avoid creating conflict/anger between fishermen.
    - Evaluation criteria for proposals in response to the solicitation will be focused on price (70%), economic development (20%), and project viability (10%). Fisheries Compensation Plans, if developers choose to include them, are part of the economic development scoring criteria, but details of the scoring/evaluation process are still being worked out.
    - It was suggested that compensation programs/concepts may be an area of overlap between the E-TWG and F-TWG, and that the E-TWG and/or F-TWG may want to recommend the creation of a Specialist Committee on compensatory mitigation for offshore wind.
    - The inclusion of fisheries compensation in the order was of concern to several developers, because it implicitly accepted that offshore wind development causes an impact on fisheries that requires financial compensation. Several E-TWG members

suggested that it is possible that fisheries impacts from offshore wind could be mitigated to the point that the industries could successfully coexist, so long as developers mitigate impacts through siting, layout, development timeline, etc. However, it was suggested that including compensation plans in the scoring criteria would seem to reward developers who choose to pay compensation rather than mitigate their impacts (which also has a substantial cost).
    - Greg Lampman noted that while the Order mentions mitigation plans, compensation is just one form of mitigation, and that there was room for interpretation of this section of the order to include non-compensatory mitigation.

- Coordination on lighting and other issues:
    - NYSERDA needs to coordinate and collaborate with federal partners. Other regulatory processes for lighting of offshore structure are overseen by BOEM and the Coast Guard, and NYSERDA needs to ensure that the lighting requirements in procurement solicitations won't conflict with other regulatory requirements.
        - Greg Lampman noted that NYSERDA has some discretion in what is included in the final solicitation to avoid issues like this as needed.
        - BOEM is still in the process of developing lighting guidelines for offshore wind energy development. They have had a lot of discussions with the Federal Aviation Administration and the Coast Guard, as well as internally within BOEM. The Coast guard has no concerns about Aircraft Detection Lighting Systems (ADLS), as they are more focused on lighting around the base of the structure (to prevent ship collisions) rather than on the nacelle. The timeline for when this type of technology will be commercially available for offshore wind turbines is still a bit unclear, however. An E-TWG member noted that Aircraft Detection Lighting Systems (ADLS) are being advanced as quickly as possible by turbine manufacturers. Isis Farmer of BOEM will let the E-TWG know as soon as the BOEM lighting guidelines become available.
    - Managing fisheries is different than managing fish habitat and healthy fish populations, but they're clearly inextricably linked. How do we jointly address fish/fisheries issues? Develop cross-cutting Specialist Committees?
        - Greg Lampman noted that in the short term, NYSERDA and the state are trying to do several things very quickly, like the prioritization of research topics for NYSERDA's planned research solicitation, which due to their short timelines are precluding close coordination between the groups. Longer term, however, he indicated that this is clearly a goal.
    - Despite recent changes at the federal level with regard to the Regional Planning Bodies (RPBs), the priorities outlined in the regional Ocean Action Plans remain priorities for many states. NYSERDA should coordinate with other states directly and through the Mid-Atlantic Regional Council for the Ocean (MARCO) and Northeast Regional Ocean Council (NROC).

    - Canada has recently developed an online platform for quasi-real time monitoring of North Atlantic right whales[8]. In advocating for real time monitoring of whales, it is important to consider that creating a system that is publicly available and invites public attraction to protected species may be potentially problematic from a conservation perspective. Careful consideration is required to determine how real time information is shared (e.g., on what timeline information is shared publicly vs. operationally).
    - The North Sea was designated as a special area of conservation, which led to considerable efforts to identify noise impacts from seismic exploration for oil and gas, as well as pile driving and seismic surveys for offshore wind energy development. Studies from the North Sea have provided useful information and can inform the E-TWG about the state of the science in this topic area.
    - BOEM also has proposed an updated rule[9] regarding the environmental impacts of seismic activities for oil and gas, including cumulative impacts from noise (e.g., including considerations of noise frequency as well as duration). The E-TWG could monitor this rulemaking process to understand the cumulative impact analysis methods being proposed.
- Consideration of the mitigation hierarchy:
    - It was suggested that the mitigation hierarchy could be adopted as part of the E-TWG framework. The BOEM March 2017 Workshop[10] focused in part on the mitigation hierarchy, and on the importance of avoiding, minimizing, and mitigating impacts, and considering compensatory mitigation options only when and where protected species and offshore wind do have to coexist.
    - In general, BOEM encourages developers to think about the mitigation hierarchy and to support whatever mitigation plan is proposed with as much data as possible.

E-TWG Charter

In response to discussions at the previous E-TWG meeting, E-TWG support staff developed a draft charter document to define group operations. Kate Williams reviewed the major components of this charter briefly, and recommended the following next steps:

- Incorporate the mitigation hierarchy into the guiding principles for the E-TWG (above)
- Send the draft charter back out to the E-TWG for an additional 2-week review period. E-TWG members provide feedback via email or phone call
- Finalize charter and publish on the E-TWG website

In response to a recommendation from E-TWG members at the May 2018 meeting, the E-TWG's geographic scope was defined as areas from Massachusetts to North Carolina. NYSERDA approached state government personnel from all states within this scope, and several new state representatives joined the E-TWG via phone for this July meeting.

[8] http://www.dfo-mpo.gc.ca/species-especes/mammals-mammiferes/narightwhale-baleinenoirean/alert-alerte/index-eng.html

[9] https://www.federalregister.gov/documents/2018/06/22/2018-12906/taking-and-importing-marine-mammals-taking-marine-mammals-incidental-to-geophysical-surveys-related

[10] https://www.boem.gov/BMP-Workshop-Protected-Species/

Specialist Committee Planning

Kate Williams briefly reviewed criteria for the selection of priority topics for Specialist Committees, and the different roles that SCs could play in moving topics forward. Greg Lampman described NYSERDA's current needs, and stressed the importance of obtaining input and buy-in from stakeholders without slowing down the State's timeline for procurements and research solicitations. NYSERDA's needs for E-TWG input fell into four general categories:

- Informing the development of materials associated with the Order for Procurement (primarily by submitting input to NYSERDA's RFI).
- Defining near-term research needs to be included in NYSERDA's planned fall 2018 research solicitation.
- Developing BMPs for Phase 2 procurements, including updating NYSERDA's 2014 marine wind and wildlife research plan (NYSERDA 2015).
- Developing other Specialist Committees to address specific topics defined as priorities by E-TWG members.

E-TWG members commented that it would make sense to use the 2014 research plan as a starting point to inform the planned research solicitation, and that it was also essential (given the short time horizon for some of the state's upcoming activities) to identify immediate research needs vs. topics that could be phased in later. It was recognized that BMPs would need to change and evolve as the State development process proceeded through Phase 1 and 2 procurements. Greg Lampman indicated that NYSERDA and E-TWG support staff would develop a proposed approach for helping the E-TWG to develop BMPs.

Kate presented an overview of 22 priority topics suggested by E-TWG members prior to the meeting, and Jason Gershowitz facilitated E-TWG discussion of these topics, including assessment of each topic's uniqueness, relative importance, possible end goals or products, and resources for additional information or expertise.

Specialist Committee Topics Suggested by E-TWG Members Prior to the Meeting

The E-TWG submitted 22 topics as priorities for discussion, which E-TWG support staff summarized and organized into seven general categories (Table 1). Topic numbers do not indicate priority order.

Table 1. Topics submitted for discussion by E-TWG members prior to the meeting.

Category	Topic	Topic #
Real-time whale monitoring: Developing real-time localization and tracking methods at project sites	Software for real-time whale tracking/info sharing	1
	Glider/buoy tech development	2
	Acoustic buoy and real-time ID software	3
	Develop ≥1 accepted approaches for real-time obs. and mitigation (acoustic detection arrays, infrared and thermal imaging cameras, drones)	4
	Independent verification of approaches for monitoring whales in poor visibility	5
	Independent verification of a real-time detection and mitigation protocol for NARW	6
Habitat and Food Webs	Assessment of indirect effects to wildlife from offshore wind development: state of knowledge and identification of data gaps	7

Category	Topic	Topic #
	Baseline study on ecology (density and abundance) of plankton/primary producers	8
	Modeling potential changes in localized currents and larval habitat use	9
	Expert assessment of potential impacts to living resources that support fisheries, and development of a research and monitoring plan (in cooperation with fishing community) that allows for assessment of impacts to inform future development	10
	Monitoring plan to assess changes to fish populations and biological communities in relation to offshore wind energy development	11
Best Practices Guidance	Guidance for designing studies to differentiate offshore wind impacts from other environmental changes	12
	Establishing BMPs for the NY procurement process	13
	Guidance and/or advisory panel for volant wildlife to use disparate datasets in decision making	14
	Process-specific wildlife risk assessments and possible BMPs	15
Other guidance and assessments	Informational document assessing availability & effectiveness of existing mitigation measures to inform BMPs for all taxa on the east coast (including methodologies, findings, and recommendations for both construction and operations)	16
	Assess potential for cumulative impacts to migratory species along the east coast, including migratory birds, fish, and mammals, and recommend research/monitoring approaches to assess actual impacts	17
Regional Coordination	Committee to implement regular wind-wildlife workshops, building off of the 2018 State of the Science Workshop, and developing a partnership of stakeholders to coordinate efforts and plan for workshops in different regions of the U.S.	18
	Develop a regional strategy for coordination, integration, and communication/distribution of data from states, federal sources, developers, etc. Identify/propose a collaborative platform to support this strategy	19
Technology development for non-whale wildlife	Advisory committee to identify and test emerging technologies to meet wind-wildlife challenges (include tech and operational strategies for both monitoring and impact reduction)	20
	Feasibility assessment of non-pile driven foundation types for offshore wind in the United States. Examine characteristics for foundation options that generate less noise (oceanographic, environmental economic, supply chain, etc.)	21
Sea turtle behavior	Research study to better understand sea turtle diving behavior and inform sea-turtle specific mitigation measures for high resolution geophysical surveys	22

Priority Topics Defined by the E-TWG During Group Discussions

After discussion of the above 22 topics, and discussion earlier in the day regarding compensatory mitigation funds and under what specific circumstances they are indicated, the group defined 15 unique topic areas (listed in no particular order):

1. *Technology development for real-time observations of baleen whales: identifying practices to optimize monitoring methodologies and reduce exposure to offshore wind hazards.*
    - Need to improve detection methods and develop combination approaches that optimize detection rates (including at night and in periods of poor visibility).
    - North Atlantic right whales are a top priority, though other protected species, particularly other baleen whales, should also be included.

2. *Testing the efficacy of mitigation approaches or protocols to reduce baleen whale exposure to noise (from construction or other activities).*
    - Should include combination of approaches used in tandem – for example, PSOs and acoustics.
    - Need to include multi-species expertise in study design.
    - Could be substantial overlap in personnel with group for #1, above – the two groups would need to work together closely.
    - Prior to testing phase, should develop an informational synthesis that reviews existing mitigation measures (could also inform BMPs).

3. *Baseline study of copepod populations: understanding distributions, abundance, and species composition, and the potential for climate-driven shifts in those populations.*
    - Main goal: understand potential drivers of North Atlantic Right Whale distributions.

4. *Baseline study of prey populations (plankton, benthos, forage fishes) and the potential drivers of climate-driven shifts in these populations.*
    - Study to better understand lower food web populations, including their distributions, seasonal and inter-annual variability, recruitment, etc., and the environmental drivers of those patterns.
    - Will inform our understanding of the drivers of trends in upper trophic levels, including marine mammals, birds, and predatory fishes. Shifts in copepod populations, for example, are thought to be strongly affecting North Atlantic Right Whale populations.
    - Cannot assess impacts to these populations without first improving our baseline understanding – at the moment there are no data on these topics at the necessary scale. Results will inform future impact assessments and improve our understanding of the drivers of trends in predatory taxa in upper trophic levels.

5. *Communications effort describing the state of the science on impacts to lower food webs, localized currents, etc.*
    - There are substantial stakeholder concerns around some of these issues, though in some cases they have no strong scientific basis. The product should assess the available information and make a science-based argument for retiring some risks and more strongly focusing on others for offshore wind development in the northwestern Atlantic.
    - Possible products: a technical report that could be incorporated by reference in BOEM and permitting documents; a NYSERDA communications document; a topical session at a State of the Science workshop.

6. *Development of pre- and post-construction monitoring study to detect impacts to lower food web populations from offshore wind energy development.*
    - Based on European experience, it is very difficult to detect change in fish populations pre- and post-construction (or at least to be able to definitively attribute changes to the effects of development). Developers in Europe do attempt to assess direct impacts, including displacement, but indirect impacts are quite challenging.
    - May want to focus on particular species of commercial importance with known "hotspots" in development areas.
    - Need to prioritize studies and data gaps specifically for the Atlantic. That may in some cases involve recreating studies that have been conducted in the North Sea or elsewhere in Europe, as environmental conditions and species assemblages may be quite different in the eastern U.S. in some cases.

7. *Analytical guidance for impact assessments.*
    - Scientific guidance on study design, and on data analysis and interpretation, to ensure sufficient power to detect changes due to offshore wind energy development (power analysis, sample size, methodological and analytical approaches, etc.)
    - Need to define the baseline: there may be impacts from environmental changes not related to offshore wind (e.g., from climate change and other anthropogenic ocean uses) that need to be differentiated from offshore wind impacts.
    - MassCEC group is focused on this topic for marine mammals (e.g., designing studies that can separate impacts from offshore wind from other changes to the environment and populations).

8. *Begin developing BMPs for New York procurements.*
    - Need to identify immediate recommendations for Phase 1 procurement process and state/developer consultations. These recommendations will largely be informed by responses to NYSERDA RFI (deadline expected to be in early August).
    - Need to develop more detailed and complete BMPs for Phase 2 procurements.
    - Would make sense to divide BMPs into more specific topic areas and target subject matter experts who focus on these issues. A range of stakeholders should be considered for these BMP development efforts, including developers and regulators as well as science-based expertise.
    - A good starting point would be a literature review and assessment of the availability and effectiveness of existing mitigation measures.
    - Specific example: regulators and other stakeholders need to define the level of noise exposure that is acceptable (e.g., guidance must be developed for how to use real-time whale monitoring data to inform mitigation measures).

9. *Develop strategies, tools, or approaches to integrate environmental datasets to better inform decision making.*
    - This topic is focused on bringing different datasets together to improve our understanding of wildlife populations. This could include the integration of datasets for different taxa; integrating data for the same taxon that was collected using different monitoring approaches; or integrating a combination of wildlife and environmental

(weather, oceanographic) data to explore the drivers of wildlife distribution and abundance patterns.

- Framework that outlines strategy/tools could be precursor to development of statistical approaches?
- This kind of thinking about data synthesis would be valuable for the NEPA process. There are a lot of different data sources for some species, and developers are challenged to pull these sources together into a robust dataset that stakeholders can trust.
- Synthesizing survey and tracking data for birds and bats (including land birds in the offshore environment, as well as seabirds) is a challenge; FWS may choose to address this topic in a side workshop on Day 3 of the State of the Science meeting.
- NMFS Science Centers may be a good resource.

10. Make progress towards the development of cumulative impact assessments.

- Exact scope/approach would be informed by the expert judgement of SC members, based on what they think is most likely to be feasible and useful. Could involve the development of a general cumulative impact assessment framework, and/or development of species-specific cumulative impact assessments for key species (such as the North Atlantic Right Whale, or species with sufficient ecological data and clear indications of impacts).
    - Displacement appears to be one of the biggest impacts to birds from offshore wind energy development; could identify key foraging areas through survey work and use those data to identify cumulative impacts of displacement on foraging.
- Need to identify purpose: is it informing future siting/spatial planning, defining environmental "headroom" for the industry, or informing the NEPA process? Except in cases where there are very solid data for a given species and we can achieve a reasonable degree of certainty in analysis, this will probably be most useful as a spatial planning tool.
    - Could also inform the NEPA process: could be useful to define a defensible framework for all projects to utilize, and to increase the scientific rigor of cumulative impact assessments within the NEPA process.
- Should assess what species we have enough data for to be able to assess cumulative impacts. Gap analysis could inform short-term research priorities and set ourselves up to better answer these questions in the future.
- PCOD folks (Len Thomas) could be a good resource. The International Whaling Commission Scientific Committee also held a two-day meeting on cumulative impacts in April 2018[11], and the report that comes out of this meeting could be a useful resource as well.
- Good topic for some kind of academic partnership, as this is likely to be a long-term effort.

11. Continuation of regional coordination through State of the Science workshops.

- Work with MARCO on regular workshops around the region?
- May be lower priority than some other topics right now.

[11] https://iwc.int/pre-meeting-cumulative-impacts-2018

12. *Develop a framework for a compensatory mitigation process, including how such a process should operate and what should trigger its initiation.*
    - Was not formally proposed prior to meeting, but at least one E-TWG member said that they wanted to and should have proposed it. This topic also came up during other prioritization discussions as a need: if compensatory mitigation is recognized as being needed for a specific taxon or topic (e.g., if the effects of development cannot be adequately avoided/minimized/mitigated), it would be helpful to have thought about how this process should operate and when it should be initiated.

13. *Desktop study and brief communications document focused on the feasibility of different foundation types in the eastern U.S.*
    - A lot of factors influence developers' decisions about what turbine foundation to use – there are a lot of trade-offs. Supply chain and technical feasibility are key considerations, and are really outside the E-TWG's scope. Perhaps this is a topic for potential overlap or collaboration with the Jobs and Supply Chain TWG?
    - Carbon Trust and others are working on this topic. Is there something like this informational document already out there in Europe? (Need to check).
    - Document would be useful for getting stakeholders on the same page when considering whether to recommend the use of different foundation types in environmental BMPs.

14. *Technology assessment for flying wildlife at offshore wind farms.*
    - Suggested scope for SC includes (1) desktop assessment of existing technologies for monitoring birds and bats at offshore wind farms and deterring them from approaching turbine blades, and (2) opportunistic testing of efficacy of specific technologies in coordination with developers, technology originators, or other stakeholders.

15. *Research on the diving behavior of sea turtles to inform mitigation measures around HRG surveys and pile driving.*
    - Would be useful for informing mitigation measures around HRG surveys as well as pile driving. Very precautionary measures for sea turtles and HRG surveys right now, and we don't really know if they are needed.
    - Suggestion was made during discussions to expand the scope of this topic to include all sea turtle behavior and all development activities (although was unclear from discussions what the end product or goal would be in this case).
    - DEC had a sea turtle workshop in January 2018, report/guidance in development. Sherryll offered to follow up and discover what diving behavior recommendations are included in this report, if any, to help inform the scope of this SC.
    - There is an action item in the New York Ocean Action Plan focused specifically on sea turtles that could help inform the scope of this SC.
        - Two action items that mention turtles are: "Reduce the incidental catch of marine mammals, sea turtles, seabirds and Atlantic sturgeon" and "Design and implement a monitoring survey for Sea Turtles in the New York Bight."

Next Steps for SC Topic Prioritization

The E-TWG agreed that the next step for prioritization of these topics would be to conduct an informal vote for the top priorities to move forward in the short term (e.g., in the next six months), using an online survey tool. Observer members were asked to provide nonvoting input on the process via comment fields if they were not comfortable voting. An open-ended opportunity to submit additional topics was also suggested for inclusion in the survey, in case there were other urgent topics that were not included in discussions.

Literature Cited

New York Public Sevice Commission (2018). Order Establishing Offshore Wind Standard and Framework for Phase 1 Procurement. [Online.] Available at http://documents.dps.ny.gov/public/MatterManagement/MatterFilingItem.aspx?FilingSeq=210670&MatterSeq=55709.

NYSERDA (2015). NYSERDA Environmental Research Program Plan Research Area 4: Marine Wind and Wildlife. NYSERDA Report 15-30. *Prepared by the Biodiversity Research Institute*. [Online.] Available at nyserda.ny.gov/publications.

U.S. Department of Energy and U.S. Department of the Interior (2016). National Offshore Wind Strategy: Facilitating the Development of the Offshore Wind Industry in the United States.

Appendix A: Meeting Agenda

The below agenda was modified by group consent on the day of the meeting, to allow more time for the procurement and Specialist Committee Planning discussions. The communications and outreach plan and State of the Science workshop topics were shelved for future discussion via email and/or conference call.

New York Environmental Technical Working Group (E-TWG) Meeting Agenda

17 July 2018, 10am – 5:30pm
Offices of the Department of Public Service
90 Church St., New York, New York

Meeting Objectives:

- Review status of PSC comments
- Discuss and advance draft E-TWG charter
- Identify priorities for Specialist Committees
- Discuss objectives for E-TWG outreach and communications
- Discuss State of the Science workshop

Time	Agenda Item
9:30 – 10:00 AM	**Coffee and Networking**
10:00 – 10:20 AM	**Welcome** • Opening remarks & brief introductions
10:20 – 10:30 AM	**Agenda & Meeting Objectives** • Ground rules
10:30 – 11:30 AM	**Updates: E-TWG and Related Activities** *Presentation & Discussion* • Recap of E-TWG Meeting 1 • R&D Consortium • Other timely updates ○ *Facilitated discussion*
11:30 – 12:00 AM	**Order Establishing an Offshore Wind Standard and Framework for Phase 1 Procurement** *Presentation & Discussion* • Status update • Next steps
12:00 – 12:30 PM	**E-TWG Charter** *Presentation & Discussion*
12:30 – 1:30 PM	*Lunch (Provided on site)*

Time	Agenda Item
1:30 – 2:45 PM	**Specialist Committee Planning** *Presentation & Discussion* • Upcoming NYSERDA solicitation • Priority topics identified by the E-TWG • Facilitated discussion to further prioritize and scope topics
2:45 – 3:00 PM	*Break*
3:00 – 3:45 PM	**Specialist Committee Planning, continued** *Discussion* • Facilitated discussion to prioritize and scope topics
3:45 – 4:15 PM	**Communications and Outreach Plan** *Presentation & Discussion* • E-TWG input on key topics for plan development
4:15 – 5:15 PM	**State of the Science Workshop Planning** *Presentation & Discussion* • Agenda and logistics updates • Planning discussion
5:15 – 5:30 PM	**Wrap Up & Next Steps** • Review action items from the day's discussions
5:30 PM	*Close*

Appendix B: List of Participants

Point of Contact	Organization	Stakeholder Type	Role
Greg Lampman	*NYSERDA*	*State Government*	*Convener/chair*
Jen Banks	U.S. Wind	Developer	Advisor
David Beutel	Rhode Island Coastal Resources Management Council	State Government	Observer/ technical support
Catherine Bowes	National Wildlife Federation	eNGO	Advisor
Isis Farmer	Bureau of Ocean Energy Management	Federal Government	Observer/ technical support
Drew Faulhaber	Delaware Coastal Programs	State Government	Observer/ technical support
Martin Goff	Equinor	Developer	Advisor
Kevin Hassell	New Jersey Department of Environmental Protection	State Government	Observer/ technical support
Scott Johnston	U.S. Fish and Wildlife Service	Federal Government	Observer/ technical support
Sherryll Huber Jones	New York Department of Environmental Conservation	State Government	Observer/ technical support
Jamil Khan	Deepwater Wind	Developer	Advisor
Francine Kershaw	Natural Resources Defense Council	eNGO	Advisor
Amanda Lefton	The Nature Conservancy	eNGO	Advisor
Jillian Liner	Audubon New York	eNGO	Advisor
Joe Martens	NY Offshore Wind Alliance	nonpartisan NGO	Advisor
Catherine McCall	Maryland Department of Natural Resources	State Government	Observer/ technical support
Laura McKay	Virginia Department of Environmental Quality	State Government	Observer/ technical support
Anne Marie McShea	New Jersey Board of Public Utilities	State Government	Observer/ technical support
Laura Morse	Ørsted	Developer	Advisor
Matt Robertson	Vineyard Wind	Developer	Advisor
Howard Rosenbaum	Wildlife Conservation Society	eNGO	Advisor
David Stevenson	National Oceanic and Atmospheric Administration	Federal Government	Observer/ technical support

Support staff present

Angela Guiliani, Allison Rose, Richard Bourgeois (NYSERDA)

Kate Williams, Iain Stenhouse (BRI)

Jason Gershowitz (Kearns & West)